



# **STIC Search Report**

## **Biotech-Chem Library**

**STIC Database Tracking Number: 118906**

**TO: Devesh Khare**  
**Location: REM-5C335/5C18**  
**Art Unit: 1623**  
**Monday, April 12, 2004**

**Case Serial Number: 10/601912**

**From: Mary Jane Ruhl**  
**Location: Biotech-Chem Library**  
**Rensen 1-B55**  
**Phone: 571-272-2524**

**maryjane.ruhl@uspto.gov**

### **Search Notes**

Examiner Khare,

Here are the results for your recent search request.

Please feel free to contact me if you have any questions about these results.

Thank you for using STIC services. We appreciate the opportunity to serve you.

Sincerely,

Mary Jane Ruhl  
Technical Information Specialist  
STIC  
CM-1, Rm. 6-A-06  
605-1155





# STIC SEARCH RESULTS FEEDBACK FORM

## Biotech-Chem Library

Questions about the scope or the results of the search? Contact *the searcher* or *contact*:

Mary Hale, Information Branch Supervisor  
571-272-2507 Remsen E01 D86

## Voluntary Results Feedback Form

➤ I am an examiner in Workgroup:  Example: 1610

➤ Relevant prior art **found**, search results used as follows:

- ☐ 102 rejection
- ☐ 103 rejection
- ☐ Cited as being of interest.
- ☐ Helped examiner better understand the invention.
- ☐ Helped examiner better understand the state of the art in their technology.

Types of relevant prior art found:

- ☐ Foreign Patent(s)
- ☐ Non-Patent Literature  
(journal articles, conference proceedings, new product announcements etc.)

➤ Relevant prior art **not found**:

- ☐ Results verified the lack of relevant prior art (helped determine patentability).
- ☐ Results were not useful in determining patentability or understanding the invention.

Comments:

Drop off or send completed forms to STIC/Biotech-Chem Library Remsen Bldg.



Access DB#

118906

## SEARCH REQUEST FORM

### Scientific and Technical Information Center

Requester's full Name: Devesh Khare Examiner #: 77931 Date: 04/07/2004

Art Unit: 1623 Phone Number 272-0653 Serial Number: 10/601,912

Mail Box: Remsen 5C18 and Bldg/Room Location: 5C35 Results Format Preferred (circle): PAPER DISK E-MAIL

**If more than one search is submitted, please prioritize searches in order of need.**

\*\*\*\*\*

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be search Include the elected species or structures, key words, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: See Bib Data Sheet on e-

dan.

Inventors (please provide full names): See Bib Data Sheet on e-

dan.

Earliest priority Filing Date: See Bib Data Sheet on e-dan.

*\*For Sequence Searches Only\* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.*

Please carry out a search on the following claims:

1. A saccharide-derivatized oligosaccharide mixture comprising the extrusion reaction product of a saccharide product having an average degree of polymerization ranging from 1 to 4 with a mixture of malto-oligosaccharides, wherein upon extrusion sufficient heat and work are imparted to said mixture of malto-oligosaccharides and said saccharide to derivatize said malto-oligosaccharide with said saccharide.
- 10 2. A mixture according to claim 2, at least about 75% of the malto-oligosaccharides in said mixture having a degree of polymerization greater than 5.
3. A mixture according to claim 1, said saccharide product consisting essentially of dextrose.
- 15 4. A mixture according to claim 3, said dextrose being in monohydrate form.
5. A mixture according to claim 1, said saccharide product consisting essentially of a mixture of dextrose and hydrogenated starch hydrolyzate, said product including about 50% to about 95% by weight of said hydrogenated starch hydrolyzate.
- 20 6. A mixture according to claim 5, said starch hydrolyzate being sorbitol.
- 25 7. A mixture according to claim 1, said saccharide product consisting

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PTO-1590 (1-2000)

Khare 10/601,912

11/04/2004

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L21 ANSWER 1 OF 1 HCAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2004:2900 HCAPLUS

DOCUMENT NUMBER: 140:58735

TITLE: Dextrinized, saccharide-derivatized oligosaccharides as bulking agents and energy slow-release agents for food and feed use.

INVENTOR(S): Antrim, Richard L.; Barresi, Frank W.; Mcpherson, Roger E.; Wang, Jiao

PATENT ASSIGNEE(S): Grain Processing Corporation, USA

SOURCE: PCT Int. Appl., 30 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004000860	A2	20031231	WO 2003-US19810	20030623
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ			
RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
US 2004053886	A1	20040318	US 2003-601912	20030623

PRIORITY APPLN. INFO.: US 2002-390570P P 20020621

AB Disclosed are saccharide-derivatized oligosaccharides. The derivatized oligosaccharides preferably are prepared by extruding a maltooligosaccharide mixture with a saccharide or mixture of saccharides having a DP ranging from 1 to 4. The products are low in digestibility, and thus in various embodiments are suitable for use as bulking agents, for controlled energy release products, and for other purposes.

IC ICM C07H

CC 17-6 (Food and Feed Chemistry)

ST oligosaccharide dextrinized saccharide deriv food feed additive

IT Color

Decolorization

Dietary energy

Digestibility

Extrusion, nonbiological

Feed additives

Fillers

Food additives

(dextrinized, saccharide-derivatized oligosaccharides as bulking agents and energy slow-release agents for food and feed use.)

IT Acids, uses

RL: CAT (Catalyst use); USES (Uses)

(dextrinized, saccharide-derivatized oligosaccharides as bulking agents and energy slow-release agents for food and feed use.)

IT Oligosaccharides, biological studies

RL: FFD (Food or feed use); RCT (Reactant); BIOL (Biological study); RACT

- (Reactant or reagent); USES (Uses)  
 (dextrinized, saccharide-derivatized oligosaccharides as bulking agents  
 and energy slow-release agents for food and feed use.)
- IT Carbohydrates, reactions  
 Maltooligosaccharides  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (dextrinized, saccharide-derivatized oligosaccharides as bulking agents  
 and energy slow-release agents for food and feed use.)
- IT Oligosaccharides, biological studies  
 RL: FFD (Food or feed use); BIOL (Biological study); USES (Uses)  
 (saccharide derivs.; dextrinized, saccharide-derivatized  
 oligosaccharides as bulking agents and energy slow-release agents for  
 food and feed use.)
- IT Drying  
 (spray; dextrinized, saccharide-derivatized oligosaccharides as bulking  
 agents and energy slow-release agents for food and feed use.)
- IT 50-21-5, Lactic acid, uses 64-19-7, Acetic acid, uses 77-92-9, Citric  
 acid, uses 87-69-4, Tartaric acid, uses 110-17-8, Fumaric acid, uses  
 124-04-9, Adipic acid, uses 526-95-4, Gluconic acid 6915-15-7, Malic  
 acid 7664-38-2, Phosphoric acid, uses  
 RL: CAT (Catalyst use); USES (Uses)  
 (dextrinized, saccharide-derivatized oligosaccharides as bulking agents  
 and energy slow-release agents for food and feed use.)
- IT 77938-63-7, Dextrose monohydrate  
 RL: FFD (Food or feed use); BIOL (Biological study); USES (Uses)  
 (dextrinized, saccharide-derivatized oligosaccharides as bulking agents  
 and energy slow-release agents for food and feed use.)
- IT 50-70-4, Sorbitol, reactions 50-99-7, Dextrose, reactions 69-79-4,  
 Maltose 1109-28-0, Maltotriose 9050-36-6, Maltrin 34612-38-9,  
 Maltotetraose  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (dextrinized, saccharide-derivatized oligosaccharides as bulking agents  
 and energy slow-release agents for food and feed use.)
- IT 67-47-0, 5-Hydroxymethylfurfural  
 RL: REM (Removal or disposal); PROC (Process)  
 (dextrinized, saccharide-derivatized oligosaccharides as bulking agents  
 and energy slow-release agents for food and feed use.)
- IT 9005-25-8D, Starch, hydrolyzates  
 RL: FFD (Food or feed use); BIOL (Biological study); USES (Uses)  
 (dextrinized; dextrinized, saccharide-derivatized oligosaccharides as  
 bulking agents and energy slow-release agents for food and feed use.)
- IT 9004-53-9, Dextrin  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (limit dextrin; dextrinized, saccharide-derivatized oligosaccharides as  
 bulking agents and energy slow-release agents for food and feed use.)

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FILE 'REGISTRY' ENTERED AT 11:53:09 ON 12 APR 2004

E DEXTROSE/CN  
 L1 1 SEA ABB=ON DEXTROSE/CN  
 E MALTO-OLIGOSACCHARIDE/CN  
 E SORBITOL/CN  
 L2 1 SEA ABB=ON SORBITOL/CN  
 E MALTOSE/CN  
 L3 2 SEA ABB=ON MALTOSE/CN  
 E DEXTROSE/CN  
 L4 1 SEA ABB=ON "DEXTROSE MONOHYDRATE"/CN  
 L5 2 SEA ABB=ON L1 OR L4

FILE 'HCAPLUS' ENTERED AT 11:54:31 ON 12 APR 2004

L6 897 SEA ABB=ON ?SACCHAR?(W)?DERIV?(3A)?OLIGOSACCHARID?  
 L7 0 SEA ABB=ON L6 AND ?EXTRUSION?(W)?REACT?  
 L8 1 SEA ABB=ON L6 AND ?EXTRUSION? - *inventor's*  
 L9 1823 SEA ABB=ON ?MALTO?(W)?OLIGOSACCH? OR ?MALTOOLIGOSACCH?  
 L10 90 SEA ABB=ON L6 AND L9  
 L11 52 SEA ABB=ON L10 AND (L5 OR L3 OR ?DEXTROSE? OR ?MALTOSE?)  
 L12 1 SEA ABB=ON L11 AND (?HYDROGEN?(W)?STARCH?(W)?HYDROLYZ? OR L2  
 OR ?SORBITOL?) - *inventor's*  
 L13 13 SEA ABB=ON L11 AND ?MIXT?  
 L14 1 SEA ABB=ON L11 AND ?POLYMERIZ?(3A)?DEGREE?  
 L15 14 SEA ABB=ON L12 OR L13 OR L14 *14 cit's from CA Plus*

FILE 'MEDLINE, BIOSIS, EMBASE, WPIDS, JICST-EPLUS, JAPIO, AGRICOLA, CABA, CROPB, CROPR, CROPU, FSTA, FROSTI, LIFESCI' ENTERED AT 12:01:16 ON 12 APR 2004

L16 2 SEA ABB=ON L14  
 L17 5 SEA ABB=ON L15  
 L18 5 SEA ABB=ON L16 OR L17  
 L19 5 DUP REMOV L18 (0 DUPLICATES REMOVED) *5 cit's from other d.b.'s*

*I hope you'll find something useful in these results. Your request was truncated at claim 7 & I couldn't locate claims via eScan, so I'm not sure if there were additional claims. Pls. call me if you need additional work on this search.*

*Thank you,  
 Mary Jane Ruhl  
 X 22524*

=&gt; d que stat 115

L1 1 SEA FILE=REGISTRY ABB=ON DEXTROSE/CN  
 L2 1 SEA FILE=REGISTRY ABB=ON SORBITOL/CN  
 L3 2 SEA FILE=REGISTRY ABB=ON MALTOSE/CN  
 L4 1 SEA FILE=REGISTRY ABB=ON "DEXTROSE MONOHYDRATE"/CN  
 L5 2 SEA FILE=REGISTRY ABB=ON L1 OR L4  
 L6 897 SEA FILE=HCAPLUS ABB=ON ?SACCHAR?(W)?DERIV?(3A)?OLIGOSACCHARID  
 ?  
 L9 1823 SEA FILE=HCAPLUS ABB=ON ?MALTO?(W)?OLIGOSACCH? OR ?MALTOOLIGOS  
 ACCH?  
 L10 90 SEA FILE=HCAPLUS ABB=ON L6 AND L9  
 L11 52 SEA FILE=HCAPLUS ABB=ON L10 AND (L5 OR L3 OR ?DEXTROSE? OR  
 ?MALTOSE?)  
 L12 1 SEA FILE=HCAPLUS ABB=ON L11 AND (?HYDROGEN?(W)?STARCH?(W)?HYDR  
 OLYZ? OR L2 OR ?SORBITOL?)  
 L13 13 SEA FILE=HCAPLUS ABB=ON L11 AND ?MIXT?  
 L14 1 SEA FILE=HCAPLUS ABB=ON L11 AND ?POLYMERIZ?(3A)?DEGREE?  
 L15 14 SEA FILE=HCAPLUS ABB=ON L12 OR L13 OR L14

=&gt; d ibib abs 115 1-14

L15 ANSWER 1 OF 14 HCAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2004:2900 HCAPLUS

DOCUMENT NUMBER: 140:58735

TITLE: Dextrinized, **saccharide-derivatized**  
**oligosaccharides** as bulking agents and energy  
 slow-release agents for food and feed use.

INVENTOR(S): Antrim, Richard L.; Barresi, Frank W.; Mcpherson,  
 Roger E.; Wang, Jiao

PATENT ASSIGNEE(S): Grain Processing Corporation, USA

SOURCE: PCT Int. Appl., 30 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004000860	A2	20031231	WO 2003-US19810	20030623
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				

US 2004053886 A1 20040318 US 2003-601912 20030623

PRIORITY APPLN. INFO.: US 2002-390570P P 20020621

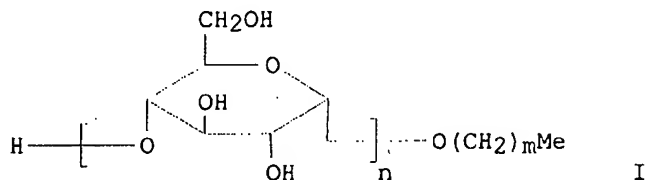
AB Disclosed are **saccharide-derivatized**  
**oligosaccharides**. The derivatized oligosaccharides preferably are  
 prepared by extruding a **maltooligosaccharide mixture** with  
 a saccharide or **mixture** of saccharides having a DP ranging from 1  
 to 4. The products are low in digestibility, and thus in various  
 embodiments are suitable for use as bulking agents, for controlled energy  
 release products, and for other purposes.



L15 ANSWER 2 OF 14 HCAPLUS COPYRIGHT 2004 ACS on STN  
 ACCESSION NUMBER: 1995:897008 HCAPLUS  
 DOCUMENT NUMBER: 123:322116  
 TITLE: Topical skin preparations containing alkyl oligomaltosides as solubilizers for hydrophobic ingredients  
 INVENTOR(S): Endo, Masayuki; Hatsutori, Takao  
 PATENT ASSIGNEE(S): Pola Kasei Kogyo Kk, Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 07228525	A2	19950829	JP 1994-21174	19940218
PRIORITY APPLN. INFO.:			JP 1994-21174	19940218
OTHER SOURCE(S):			MARPAT 123:322116	

GI



AB The topical preps. comprise aqueous carriers and hydrophobic ingredients solubilized in the carriers and contain **maltooligosaccharides derivs. I** ( $n = 3-10$ ;  $m = 11-20$ ). The hydrophobic ingredients may be inflammation inhibitors. I solubilize hydrophilic substances in aqueous carriers and generate no HCHO upon standing. Maltotriose (25 g) was gradually added to a **mixture** of Ac2O and pyridine at  $0^\circ$  and the reaction **mixture** was further stirred at room temperature for a day to give 38.2 g acetylmaltotriose (II). A ethylene dichloride solution of stearyl alc. was added dropwise to a **mixture** of II, ethylene dichloride, and  $\text{SnCl}_4$  and the reaction **mixture** was further stirred for a day to give 10.9 g stearyl decaacetylmaltotrioside, which in MeOH was treated with MeONa under stirring at room temperature for a day to give 6.2 g I ( $n = 3$ ,  $m = 17$ ) (III). An aqueous solution of III (1 weight%) was stored at  $40^\circ$  for 1 mo to generate no HCHO, 43 ppm from polyoxyethylene hydrogenated castor oil. III was not irritating to a shaven part on the back of a guinea pig. A **mixture** of prednisolone 0.1, propylene glycol 5.0, methylparaben 0.2,  $\text{H}_2\text{O}$  92.7, and III 2.0 weight% was heated at  $80^\circ$  to melt and then cooled to give a topical preparation in which prednisolone was solubilized.

L15 ANSWER 3 OF 14 HCAPLUS COPYRIGHT 2004 ACS on STN  
 ACCESSION NUMBER: 1995:865464 HCAPLUS  
 DOCUMENT NUMBER: 124:50023  
 TITLE: Separation and detection of 4-hexadecylaniline maltooligosaccharide derivatives

with packed capillary liquid chromatography-frit fast atom bombardment-mass spectrometry

AUTHOR(S): Johansson, Lena; Karlsson, Hasse; Karlsson, Karl-Anders

CORPORATE SOURCE: Department of Medical Biochemistry, University of Goeteborg, Medicinaregatan 9A, Goteborg, S-413 90, Swed.

SOURCE: Journal of Chromatography, A (1995), 712(1), 149-54  
CODEN: JCRAEY; ISSN: 0021-9673

PUBLISHER: Elsevier

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A LC-MS method is under development for the separation and detection of **mixts.** of native glycolipids and of **oligosaccharide derivs.** The LC system is based on slurry-packed capillary columns. Frit fast atom bombardment (frit-FAB) was used as the LC-MS interface and ionization technique and the column is connected to the frit via a 50  $\mu$ m I.D. fused-silica capillary liner. Post column addition of matrix is achieved using a 50  $\mu$ m I.D. fused-silica capillary liner with 2.5% (volume/volume) matrix solution. The two liners are joined through a septum and end side by side against the frit. The detection limit is <1 pmole in the neg. ion mode. A **mixture** of tetra to deca **maltooligosaccharides** reductively aminated with 4-hexadecylaniline (M4-10-HDA) was separated on a straight phase silica column using gradient elution.

L15 ANSWER 4 OF 14 HCAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1994:324132 HCAPLUS

DOCUMENT NUMBER: 120:324132

TITLE: Preparation of 6-alkoxymethoxy **maltooligosaccharide derivative**, reagents containing the derivative as active ingredient for determination of  $\alpha$ -amylase activity, and method for determination of  $\alpha$ -amylase activity

INVENTOR(S): Tokutake, Shoichi; Tomikura, Tadashi; Kotani, Kazuo; Saito, Kazunori; Tobe, Koichiro

PATENT ASSIGNEE(S): Kikkoman Corp, Japan; Daiichi Kagaku Yakuhin Kk; Seishin Seiyaku Kk

SOURCE: Jpn. Kokai Tokkyo Koho, 22 pp.

CODEN: JKXXAF

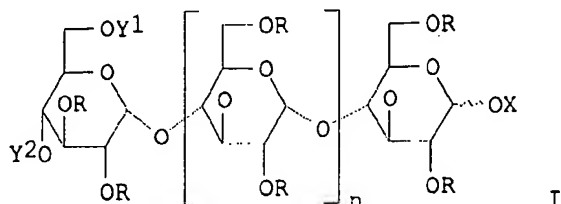
DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 06056869	A2	19940301	JP 1991-180465	19910626
PRIORITY APPLN. INFO.:			JP 1991-180465	19910626
OTHER SOURCE(S):		MARPAT 120:324132		
GI				



AB 6-O-(alkoxymethyl)maltooligosaccharide derivs. [I; R = H; n = 2-6; X = aromatic chromophore; Y1 = CHR1OR2, CHR1SR2; Y3 = CHR3OR4, CHR3SR4; R1, R3 = H, (un)substituted hydrocarbyl; R2, R4 = (un)substituted hydrocarbyl; or R1 and R2 or R3 and R4 are bonded together to form an alkylene] are prepared. A reagent for determination of  $\alpha$ -amylase activity contains the maltooligosaccharide derivative I as the active ingredient. The  $\alpha$ -amylase activity is determined by (1) adding the  $\alpha$ -anomer of maltooligosaccharide derivative I,  $\alpha$ -glucosidase, and/or glucoamylase or (2) adding the  $\beta$ -anomer or a mixture of  $\alpha$ - and  $\beta$ -anomers of the maltooligosaccharide derivative I,  $\alpha$ -glucosidase and/or glucoamylase, and  $\beta$ -glucosidase to a  $\alpha$ -amylase-containing sample, carrying out the enzymic reaction, and determination of the aromatic chromophore compound released. The maltooligosaccharide derivative I is not readily decomposed, stable for a long period of time, hydrolyzed substantially at one position by  $\alpha$ -amylase and at the same positions by isoenzymes with same hydrolysis ratio, and shows good hydrolysis rate and water solubility. Using this substrate I, the  $\alpha$ -amylase activity is efficiently determined with good accuracy in a short time without the influence from other components (e.g. glucose, maltose, bilirubin, and Hb) in a sample. Thus, 2-chloro-4-nitrophenyl  $\beta$ -D-maltopentaoside (II) was stirred with C(OMe)<sub>4</sub> in the presence of Amberlyst 15E at 35° for 4 h to give orthoester  $\beta$ -I [R = H, n = 3, X = 2-chloro-4-nitrophenyl, Y1Y2 = (MeO)<sub>2</sub>C] which was acetylated by Ac<sub>2</sub>O in pyridine and then deprotected with AcOH to give acetate  $\beta$ -I (R = Ac, n = 3, X = 2-chloro-4-nitrophenyl, Y1 = Y2 = H). The latter compound was alkylated by MeOCH<sub>2</sub>CH<sub>2</sub>OCH<sub>2</sub>Cl in MeCN containing Et<sub>3</sub>N under reflux followed by deacetylation with aqueous NH<sub>3</sub> in MeOH to give  $\beta$ -I (R = H, n = 3, X = 2-chloro-4-nitrophenyl, Y1 = Y2 = MeOCH<sub>2</sub>CH<sub>2</sub>OCH<sub>2</sub>) (III). III was hydrolyzed by human saliva-derived  $\alpha$ -amylase at hydrolysis rate equivalent to that of maltopentaoside II to give 98% 2-chloro-4-nitrophenyl D-maltoside and 2% 2-chloro-4-nitrophenyl D-glucopyranoside.

L15 ANSWER 5 OF 14 HCAPLUS COPYRIGHT 2004 ACS on STN  
 ACCESSION NUMBER: 1993:493731 HCAPLUS  
 DOCUMENT NUMBER: 119:93731  
 TITLE: Manufacture of maltooligosaccharide derivatives with amylase  
 INVENTOR(S): Usui, Taichi; Nakakuki, Teruo; Sakai, Kazuo  
 PATENT ASSIGNEE(S): Nihon Shokuhin Kako Co., Ltd., Japan; Yaizu Suisan Kagaku Kogyo Co., Ltd.  
 SOURCE: U.S., 5 pp. Cont. of U.S. Ser. No. 568,525, abandoned.  
 CODEN: USXXAM  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5208151	A	19930504	US 1990-607612	19901031
PRIORITY APPLN. INFO.:			US 1988-234019	19880818
			US 1989-434516	19891114
			US 1990-568525	19900814

AB Highly purified **maltooligosaccharide derivs.** can be produced in high yield by reacting, in a **mixture** of hydrophilic organic solvent and water, a **mixture** of **maltooligosaccharide**, or a substance capable of being converted into the **maltooligosaccharide** upon reaction with an amylase, and an O-glycosyl derivative, with the amylase. Thus, maltopentaose and 4-nitrophenyl- $\beta$ -D-glucoside in 1:1 15 mM acetate buffer and MeOH were incubated at 30° for 48 h with maltotetraose-producing amylase from *Pseudomonas stutzeri*. The product 4-nitrophenyl- $\beta$ -D-maltopentaoside was produced in 32.7% yield and 99.2% purity by gel permeation column chromatog.

L15 ANSWER 6 OF 14 HCAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1993:60043 HCAPLUS

DOCUMENT NUMBER: 118:60043

TITLE: Preparation of **galactosylmaltooligosaccharide** phenyl glycoside derivatives and method for fractional analysis of human pancreas- and saliva-type  $\alpha$ -amylase using them

INVENTOR(S): Usui, Yasuichi; Ogawa, Koichi; Nakakuki, Teruo

PATENT ASSIGNEE(S): Nippon Shokuhin Kako K. K., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 9 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 04193892	A2	19920713	JP 1990-324191	19901127
JP 3055931	B2	20000626		

PRIORITY APPLN. INFO.: JP 1990-324191 19901127

OTHER SOURCE(S): MARPAT 118:60043

AB The title glycosides [I; R = (un)substituted Ph; R1 = Q; n = 2-5], are prepared by transglycosidation of **maltooligosaccharide derivative** I (R and n = same as above; R1 = H) with a galactosyl residue-containing sugar in the presence of  $\beta$ -galactosidase. The fractional anal. of human pancreas- and saliva-type  $\alpha$ -amylase involves reacting a sample containing the  $\alpha$ -amylases with the substrates I and measuring the production ratio of a few **maltooligosaccharide derivs.** formed. Thus, 1.89 g lactose, 1.70 g p-nitrophenyl  $\alpha$ -maltopentoside (II), 3 mg  $\beta$ -galactosidase (Biolacta; Yamato Kasei Inc.), and 6 mL 50 mM phosphate buffer (pH 7.0) was left to stand at 40° for 86 h, thereto 6 mL 0.1 M phosphate buffer was added, and the **mixture** was allowed to react at 40° for 30 h to selectively hydrolyze the regioisomer (III) in which the galactosyl residue is bonded to II through the  $\beta$ -1,4 bond, and purified by a column packed with Toyopearl HW-40S gel to give 150 mg powder containing a 1:9 ratio of III and  $\beta$ -I (R = C6H4NO2-p, R1 = Q, n = 3) (IV) which was further purified by a ODS column to give pure IV. When IV was incubated with both human pancreas- and saliva-type  $\alpha$ -amylase in a 0.1 M 3,3-dimethylglutaric acid-5 M NaOH

buffer containing  $\text{CaCl}_2$ , the production ratio of p-nitrophenyl  $\alpha$ -glucoside/p-nitrophenyl  $\alpha$ -maltoside showed a linear relationship to the ratio of human pancreas-type amylase/ saliva-type  $\alpha$ -amylase present. Thus the activity of each enzyme can be calculated from the mol. production ratio of p-nitrophenyl  $\alpha$ -glucoside/p-nitrophenyl  $\alpha$ -maltoside, thus the enzyme ratio, and the total activity of both enzymes.

L15 ANSWER 7 OF 14 HCAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1993:55635 HCAPLUS

DOCUMENT NUMBER: 118:55635

TITLE: Substrate for differentiating isozymes of  $\beta$ -amylase

INVENTOR(S): Tokutake, Shoichi; Yamatsugu, Nobuyuki; Kotani, Kazuo; Saito, Kazunori; Tobe, Koichiro

PATENT ASSIGNEE(S): Kikkoman Corp., Japan; Daiichi Kagaku Yakuhin K. K.; Seishin Seiyaku K. K.

SOURCE: Jpn. Kokai Tokkyo Koho, 14 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

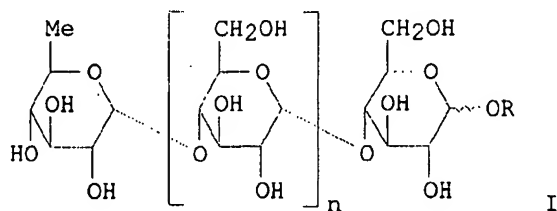
LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 04229196	A2	19920818	JP 1990-415253	19901227
JP 2752523	B2	19980518		
PRIORITY APPLN. INFO.:			JP 1990-415253	19901227
OTHER SOURCE(S):			MARPAT 118:55635	

GI



AB **6-Deoxymaltooligosaccharide derivs. I** (R=H or chromogenic aromatic group, n=2-6) are prepared as substrate for kinetically differentiating isoenzymes of  $\beta$ -amylase. DOG5-CNP (2-chloro-4-nitrophenyl-6S-deoxy- $\beta$ -D-maltopentaoside) and DOG7-CNP (2-chloro-4-nitrophenyl-6S-deoxy- $\beta$ -D-maltoheptaoside) were prepared, the  $K_m$ 's for pancreatic (P-) and saliva (S-) type  $\beta$ -amylase were determined, and equations for analyzing mixture of P- and S-type isoenzyme were provided.

L15 ANSWER 8 OF 14 HCAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1992:55098 HCAPLUS

DOCUMENT NUMBER: 116:55098

TITLE: Reagent compositions for enzymic-spectrometric determination of chloride ion in serum

INVENTOR(S): Mizuguchi, Katsuhiko; Tejima, Shinichi; Hanyu, Tsuneo  
 PATENT ASSIGNEE(S): Toyobo Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 9 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 2  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 03176000	A2	19910731	JP 1990-194282	19900723
JP 2990753	B2	19991213		
US 5470715	A	19951128	US 1994-176707	19940103
PRIORITY APPLN. INFO.:			JP 1989-244343	19890919
			JP 1990-194282	19900723
			JP 1990-212933	19900810
			US 1991-733449	19910722

AB The title reagent composition consists of **maltooligosaccharide derivs.** having (un)modified nonreducing and modified reducing terminals, metal chelators,  $\alpha$ -amylase, and  $\alpha$ -glucosidase,  $\beta$ -glucosidase and/or glucoamylase. The reagent composition has a lowered blank value and the method is simple and dets. a wide range of Cl<sup>-</sup> concns. Thus, Cl<sup>-</sup> in serum was treated with reagent 1 containing pH 7.0 phosphate buffer, EDTA,  $\alpha$ -amylase,  $\alpha$ -glucosidase, and  $\beta$ -glucosidase at 37° for 5 min and then with reagent 2 containing pH 7.0 phosphate buffer, EDTA and 2-chloro-4-nitrophenyl- $\beta$ -D-maltoheptaoside. The reaction **mixture** was measured at 400 nm for Cl<sup>-</sup> determination.

L15 ANSWER 9 OF 14 HCAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1991:431502 HCAPLUS  
 DOCUMENT NUMBER: 115:31502  
 TITLE: **Cyclomalto-oligosaccharide derivatives** and processes for their preparation  
 INVENTOR(S): Darcy, Raphael; Defaye, Jacques; Gadelle, Andree; Guillet, Alain; O'Sullivan, Thomas  
 PATENT ASSIGNEE(S): Commissariat a l'Energie Atomique, Fr.; University College Dublin  
 SOURCE: Eur. Pat. Appl., 23 pp.  
 CODEN: EPXXDW  
 DOCUMENT TYPE: Patent  
 LANGUAGE: French  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

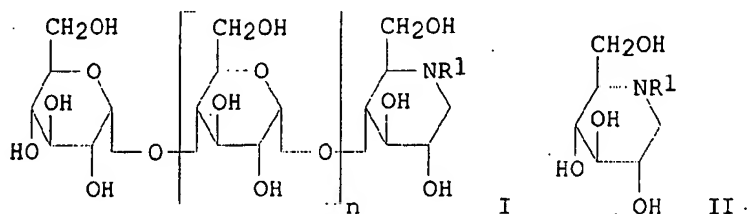
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 403366	A2	19901219	EP 1990-401620	19900612
EP 403366	A3	19910508		
EP 403366	B1	19950222		
R: BE, DE, GB, IT				
FR 2648464	A1	19901221	FR 1989-7876	19890614
FR 2648464	B1	19910830		
PRIORITY APPLN. INFO.:			FR 1989-7876	19890614
OTHER SOURCE(S):			MARPAT 115:31502	

AB The title products, with rings containing 4-11 **maltose** units and bearing mono- or oligosaccharide groups bonded by S atoms and, optionally, thiohydrocarbon chains, are prepared from **cyclomaltooligosaccharide** sulfonate esters and thiomonosaccharides or thiooligosaccharides. Leaving

a mixture of 3.9 mL 1M NaOMe and 1.3 g 2,3,4,6-tetra-O-acetyl-1-S-acetyl-1-thio- $\alpha$ -D-glucopyranose in 27 mL MeOH at ambient temperature for 12 h, concentrating in vacuo, dissolving the residue in 1,3-dimethyl-2-oxo-hexahydropyrimidinone, heating with 2.08 g 6-O-p-toluenesulfonylcyclomaltoheptaose at 70° for 3 h, and purification by chromatog. gave 1.4 g 6-S- $\alpha$ -D-glucopyranosyl-6-thiocyclomaltoheptaose, which formed H<sub>2</sub>O-soluble inclusion complexes with 2-naphthol, hydrocortisone, and Tolnaftate.

L15 ANSWER 10 OF 14 HCAPLUS COPYRIGHT 2004 ACS on STN  
 ACCESSION NUMBER: 1991:80076 HCAPLUS  
 DOCUMENT NUMBER: 114:80076  
 TITLE: Manufacture of moranoline oligosaccharides with amylase  
 INVENTOR(S): Usui, Yasuichi; Ezure, Yoji; Uejima, Osamu  
 PATENT ASSIGNEE(S): Nippon Shinyaku Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 5 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 02215394	A2	19900828	JP 1989-34246	19890214
PRIORITY APPLN. INFO.:			JP 1989-34246	19890214
OTHER SOURCE(S):		MARPAT 114:80076		
GI				

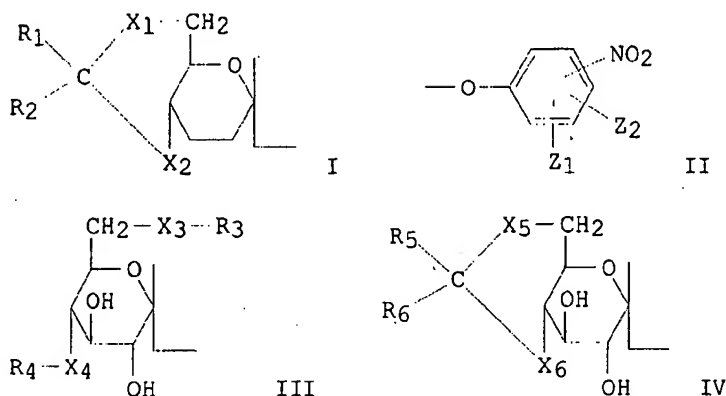


AB Moranoline oligosaccharides I (R<sub>1</sub> = H, lower alkyl; n = 0-20) are manufd. from moranoline II (R<sub>1</sub> = same as I) by incubation with **maltooligosaccharides** or compds., which can be converted into **maltooligosaccharides** with amylase, in mixts. of hydrophilic solvents and H<sub>2</sub>O in presence of amylase to manufacture moranoline oligosaccharides with n = 0-20, useful for the treatment of diabetes mellitus. Maltotriose (400 mg) and 200 mg moranoline in DMSO-phosphate buffer was treated with maltotriose-producing amylase from *Streptomyces griseus* at 40° for 80 h to produce 50 mg maltotriosylmoranoline.

L15 ANSWER 11 OF 14 HCAPLUS COPYRIGHT 2004 ACS on STN  
 ACCESSION NUMBER: 1990:94594 HCAPLUS  
 DOCUMENT NUMBER: 112:94594  
 TITLE: Differential quantitation of amylase isozymes with maltooligosaccharide substrates  
 INVENTOR(S): Ito, Hiroshi; Ogawa, Zensuke; Oda, Nobuhiro; Sato, Shigeru  
 PATENT ASSIGNEE(S): Kurita Water Industries, Ltd., Japan

SOURCE: Jpn: Kokai Tokkyo Koho, 8 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 01098498	A2	19890417	JP 1987-256693	19871012
PRIORITY APPLN. INFO.:			JP 1987-256693	19871012
OTHER SOURCE(S):	MARPAT 112:94594			
GI				



AB A sample is reacted with a reagent containing oligosaccharides AGmB1 or CGnB2 (A = I; B1, B2 = II; C = III or IV; G = glucose m, n = 3-15; R1-R6 = H, lower alkyl, benzyl, etc.; X1-X6 = O or S; Z1, Z2 = H, halo, carbonyl) and glucosidase and/or glucoamylase, and the terminal glycoside of released **maltooligosaccharide** is quantitated for the differential determination of amylase isoenzymes. Thus, a blank containing fructomaltopentaoxide (G5-F)  $\alpha$ -glucosidase, mannitol dehydrogenase, and NADH was measured spectrometrically and to this was added a test sample. The resultant **mixture** was again measured for G5-I determination. Next, a blank containing 4,6-propylene-fructomaltoheptaoxide (Pro-G7-F), glucoamylase,  $\alpha$ -glucosidase, mannitol dehydrogenase, and NADH was measured spectrometrically and to this was added the test sample. The **mixt** . was again measured for Pro-G7-F determination. Based on these results pancreatic amylase and salivary amylase are determined.

L15 ANSWER 12 OF 14 HCAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1989:422179 HCAPLUS

DOCUMENT NUMBER: 111:22179

TITLE: 6-Glucosyl **maltooligosaccharide**

**derivatives**, their enzymic manufacture and use for  $\alpha$ -amylase determination

INVENTOR(S): Yoshigi, Hisahiro; Yamamoto, Hisao; Kamimura, Minoru

PATENT ASSIGNEE(S): Sapporo Breweries Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 5 pp.

CODEN: JKXXAF



DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 63214193	A2	19880906	JP 1987-48386	19870303
PRIORITY APPLN. INFO.:			JP 1987-48386	19870303
OTHER SOURCE(S):			MARPAT 111:22179	
GI				

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

AB A method of manufacturing 6-glucosyl **maltooligosaccharide** **derivs.** [I; R = (un)substituted nitrophenol; n = 2-5] by reacting glucose/oligosaccharides/their aglycons, and **malto-oligosaccharide derivs.** [II, III; R, n as in I] with oligo-1,6-glucosidase is disclosed. I can be used in  $\alpha$ -amylase (IV) determination Crystallized 2-Cl-4-nitrophenyl  $\beta$ -glucosylmaltopentaoside (V)

0.35 g was prepared by reacting a **mixture** of isomaltotriose 0.1 and 2-Cl-4-nitrophenyl  $\beta$ -maltopentaoside 1.97 g with oligo-1,6-glucosidase of Bacillus cereus at 30°, pH 6.9, for 24 h. In determination of IV, the optical absorbance using V is more stable than the control using 2-Cl-4-nitrophenyl- $\beta$ -maltopentaoside, e.g. the absorbance of the former changed from 0.0794 at time 0 to 0.1381 at 60 min vs. 0.0798 and 0.5459, resp.

L15 ANSWER 13 OF 14 HCAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1989:71844 HCAPLUS  
 DOCUMENT NUMBER: 110:71844  
 TITLE: Differential assay of human  $\alpha$ -amylase isozymes using **maltooligosaccharide derivatives**  
 INVENTOR(S): Ikenaka, Tokuji; Omichi, Kaoru  
 PATENT ASSIGNEE(S): Wako Pure Chemical Industries, Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 63039600	A2	19880220	JP 1986-181564	19860801
JP 07112440	B4	19951206		
EP 260414	A2	19880323	EP 1987-110937	19870728
EP 260414	A3	19880406		
EP 260414	B1	19920415		
R: AT, BE, CH, DE, ES, FR, GB, GR, IT, LI, LU, NL, SE				
AT 74970	E	19920515	AT 1987-110937	19870728
ES 2036549	T3	19930601	ES 1987-110937	19870728
US 5350678	A	19940927	US 1992-884252	19920508
PRIORITY APPLN. INFO.:			JP 1986-181564	19860801
			EP 1987-110937	19870728

US 1987-79744 19870730

AB A method for the differential determination of human  $\alpha$ -amylase (I) isoenzymes using **maltooligosaccharide** (II) derivs. as substrates is disclosed. A solution containing p-nitrophenyl O-6-deoxy 6-[(2-pyridyl)amino]- $\alpha$ -D-glucopyranosyl-(1  $\rightarrow$  4)-O- $\alpha$ -D-glucopyranosyl-(1  $\rightarrow$  4)-O- $\alpha$ -D-glucopyranosyl-(1  $\rightarrow$  4')- $\alpha$ -D-glucopyranoside (III) and isomaltase and a 2nd solution containing III and  $\alpha$ -glucosidase were prepared for differential assay of a **mixture** contgI isoenzymes (pancreatic and salivary). Based on the results of spectrochem. anal., the isoenzyme activities were calculated

L15 ANSWER 14 OF 14 HCAPLUS' COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1987:18962 HCAPLUS

DOCUMENT NUMBER: 106:18962

TITLE: High performance liquid chromatographic separation of **malto-oligosaccharides** as quinoxaline derivatives for measurement of **degree of polymerization**

AUTHOR(S): Takagi, Masanosuke; Daido, Yoshiyuki; Morita, Naofumi  
CORPORATE SOURCE: Coll. Agric., Univ. Osaka Prefect., Sakai, 591, Japan

SOURCE: Analytical Sciences (1986), 2(3), 281-5

CODEN: ANSCEN; ISSN: 0910-6340

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Quinoxaline derivs. formed from **malto-oligosaccharides** (**maltose**, maltotriose, maltotetraose, maltopentaose, and maltohexaose) and O-phenylenediamine (OPD) under alkaline and heated conditions were studied for the measurement of the d.p. by HPLC anal. (2'S)-2-(2',3'-Dihydroxypropyl)-3-hydroxymethyl-quinoxaline (I) from reducing end residue and six quinoxalines from non-reducing end residue were obtained by the alkaline OPD method. The ratio of the peak area for I to 2-methylquinoxaline (II) was proportional to the d.p. of the **malto-oligosaccharides** tested. From 62-O- $\alpha$ -maltosyl maltotriose, which has both 1,4- and 1,6-linkages, a quinoxaline having a sugar moiety in its branch was separated with other smaller quinoxalines. From this chromatogram, some proportional relationships between the ratio of this quinoxaline to II and the average number of branched chain were estimated

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L1 1 SEA FILE=REGISTRY ABB=ON DEXTROSE/CN  
 L2 1 SEA FILE=REGISTRY ABB=ON SORBITOL/CN  
 L3 2 SEA FILE=REGISTRY ABB=ON MALTOSE/CN  
 L4 1 SEA FILE=REGISTRY ABB=ON "DEXTROSE MONOHYDRATE"/CN  
 L5 2 SEA FILE=REGISTRY ABB=ON L1 OR L4  
 L6 897 SEA FILE=HCAPLUS ABB=ON ?SACCHAR?(W)?DERIV?(3A)?OLIGOSACCHARID  
 ?  
 L9 1823 SEA FILE=HCAPLUS ABB=ON ?MALTO?(W)?OLIGOSACCH? OR ?MALTOOLIGOS  
 ACCH?  
 L10 90 SEA FILE=HCAPLUS ABB=ON L6 AND L9  
 L11 52 SEA FILE=HCAPLUS ABB=ON L10 AND (L5 OR L3 OR ?DEXTROSE? OR  
 ?MALTOSE?)  
 L12 1 SEA FILE=HCAPLUS ABB=ON L11 AND (?HYDROGEN?(W)?STARCH?(W)?HYDR  
 OLYZ? OR L2 OR ?SORBITOL?)  
 L13 13 SEA FILE=HCAPLUS ABB=ON L11 AND ?MIXT?  
 L14 1 SEA FILE=HCAPLUS ABB=ON L11 AND ?POLYMERIZ?(3A)?DEGREE?  
 L15 14 SEA FILE=HCAPLUS ABB=ON L12 OR L13 OR L14  
 L16 2 SEA L14  
 L17 5 SEA L15  
 L18 5 SEA L16 OR L17  
 L19 5 DUP REMOV L18 (0 DUPLICATES REMOVED)

=&gt; d ibib abs 119 1-5

L19 ANSWER 1 OF 5 EMBASE COPYRIGHT 2004 ELSEVIER INC. ALL RIGHTS RESERVED.  
 on STN

ACCESSION NUMBER: 2004074728 EMBASE

TITLE: Enzyme kinetic properties of  $\alpha$ -1,4-glucosidase in  
 Bacillus thuringiensis.

AUTHOR: Rowe G.E.; Margaritis A.

CORPORATE SOURCE: A. Margaritis, Dept. of Chem. and Biochem. Eng., Faculty of  
 Engineering, University of Western Ontario, London, Ont.  
 N6A 5B9, Canada. amarg@uwo.ca

SOURCE: Biochemical Engineering Journal, (2004) 17/2 (121-128).

Refs: 30

ISSN: 1369-703X CODEN: BEJOFV

COUNTRY: Netherlands

DOCUMENT TYPE: Journal; Article

FILE SEGMENT: 004 Microbiology

LANGUAGE: English

SUMMARY LANGUAGE: English

AB An intracellular  $\alpha$ -1,4-glucosidase was induced by **malto-**  
**oligosaccharides**, and more weakly by **maltose**, during  
 vegetative growth of *Bacillus thuringiensis* (Bt) subspecies *kurstaki* HD-1  
 if initial glucose concentration was limited to about 2g/l. The enzyme had  
 the following apparent Michaelis-Menten parameters with  
 p-nitrophenyl- $\alpha$ -D-glucopyranoside (PNPG), **maltose** and  
**malto-oligosaccharides** (average degree of  
 polymerization 3.3) as substrates, respectively:  $V(\max)=150, 260$   
 and  $200\text{nmol}/(\text{mgbiomass})/\text{min}$ ;  $K(M)=0.37, 14$  and  $4.3\text{mM}$ . Since PNPG also  
 acted as an effector, activating or inhibiting at low and high  
 concentrations, respectively, data with this substrate appeared to be  
 better fit by a two-site enzyme model. Acarbose potently inhibited the  
 enzyme, especially with natural carbohydrate substrates. **Maltose**  
 hydrolysis was competitively inhibited, while PNPG and **malto-**  
**oligosaccharides** exhibited a mixed form of inhibition. The  
 properties of the enzyme are consistent with those of a partially  
 characterized  $\alpha$ -glucosidase previously described in *Bacillus cereus*.  
 Its induction and activity patterns indicate that this enzyme processes

malto-oligosaccharides derived from starch by the combined action of the known amylase and debranching enzymes, and provide an explanation for the apparent absence of glucoamylase activity in these species. .COPYRGT. 2003 Elsevier B.V. All rights reserved.

L19 ANSWER 2 OF 5 WPIDS COPYRIGHT 2004 THOMSON DERWENT on STN  
 ACCESSION NUMBER: 2004-082469 [08] WPIDS  
 DOC. NO. CPI: C2004-033983  
 TITLE: **Saccharide-derivatized oligosaccharide mixture** useful as low-calorie bulking agents, comprises extrusion sufficient heat and work, imparted to **mixture of malto-oligosaccharides and saccharide.**  
 DERWENT CLASS: D13 D17 E13  
 INVENTOR(S): ANTRIM, R L; BARRESI, F W; MCPHERSON, R; WANG, J; MCPHERSON, R E  
 PATENT ASSIGNEE(S): (GRAI) GRAIN PROCESSING CORP  
 COUNTRY COUNT: 104  
 PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
WO 2004000860	A2	20031231	(200408)*	EN	30
RW: AT BE BG CH CY CZ DE DK EA EE ES FI FR GB GH GM GR HU IE IT KE LS LU MC MW MZ NL OA PT RO SD SE SI SK SL SZ TR TZ UG ZM ZW					
W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NI NO NZ OM PG PH PL PT RO RU SC SD SE SG SK SL TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW					
US 2004053886	A1	20040318	(200421)		

## APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2004000860	A2	WO 2003-US19810	20030623
US 2004053886	A1	Provisional	US 2002-390570P 20020621
			US 2003-601912 20030623

PRIORITY APPLN. INFO: US 2002-390570P 20020621; US 2003-601912 20030623

AN 2004-082469 [08] WPIDS

AB WO2004000860 A UPAB: 20040202

NOVELTY - A **saccharide-derivatized**

**oligosaccharide mixture** comprises extrusion reaction of saccharide product having average **degree** of **polymerization** of 1-4 with **mixture of malto-oligosaccharides**, where extrusion sufficient heat and work are imparted to the **mixture of malto-oligosaccharides** and the saccharide to derivatize the **malto oligosaccharide** with the saccharide.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:

(1) process of preparing a **mixture of saccharide-derivatized oligosaccharides**, which involves providing a saccharide product having an average **degree** of **polymerization** of 1-4, providing **mixture of**

malto-oligosaccharides in which at least a portion of the malto-oligosaccharides in the mixture have degree of polymerization greater than 5 and derivatizing the mixture of malto-oligosaccharides with the saccharide product to form a mixture of saccharide-derivatized oligosaccharides by extruding a blend of the mixture of malto-oligosaccharides and the saccharide product under extrusion conditions sufficient to form mixture of saccharide derivatized oligosaccharides;

(2) product obtained by the process of preparing a mixture of saccharide-derivatized oligosaccharides; and

(3) process of preparing a saccharide derivatized oligosaccharide, which involves providing an oligosaccharide having degree of polymerization of at least 5, selecting an amount of saccharide product effective to derivatize the oligosaccharides through extrusion, the amount being sufficient to prevent significant charring of the derivatized product but insufficient to yield liquid product upon extrusion and extruding a mixture of the oligosaccharide and the saccharide to derivatize the oligosaccharides.

USE - As low-calorie bulking agents and slow energy release products.

ADVANTAGE - The saccharide-derivatized oligosaccharide mixture are low in digestibility and effectively used as bulking agents, for controlled energy release products and for other purposes.  
Dwg.0/0

L19 ANSWER 3 OF 5 EMBASE COPYRIGHT 2004 ELSEVIER INC. ALL RIGHTS RESERVED.  
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ACCESSION NUMBER: 97155998 EMBASE

DOCUMENT NUMBER: 1997155998

TITLE: Oligosaccharide characterization and quantitation using 1-phenyl-3-methyl-5-pyrazolone derivatization and matrix-assisted laser desorption/ionization time-of-flight mass spectrometry.

AUTHOR: Pitt J.J.; Gorman J.J.

CORPORATE SOURCE: J.J. Gorman, Biomolecular Research Institute, 343 Royal Parade, Parkville, Vic. 3052, Australia.  
jeffg@mel.dbc.csiro.au

SOURCE: Analytical Biochemistry, (1997) 248/1 (63-75).  
Refs: 34

ISSN: 0003-2697 CODEN: ANBCA2

COUNTRY: United States

DOCUMENT TYPE: Journal; Article

FILE SEGMENT: 029 Clinical Biochemistry

LANGUAGE: English

SUMMARY LANGUAGE: English

AB The 1-phenyl-3-methyl-5-pyrazolone (PMP) derivatives of monosaccharides, maltooligosaccharides, and oligosaccharides enzymatically released from asparagine-linked sites in ribonuclease B and fetuin have been investigated using matrix-assisted laser desorption/ionization time-of-flight mass spectrometry (MALDI-TOF-MS). Use of the matrix 2,6-dihydroxyacetophenone containing diammonium hydrogen citrate (DHAP/DAHC) resulted in predominance of protonated over sodiated pseudomolecular ions of PMP-derivatized oligosaccharides. By comparison, the matrices  $\alpha$ -cyano-4-hydroxycinnamic acid and 2,5-dihydroxybenzoic acid resulted in predominantly sodiated pseudomolecular ions. In addition, tendencies for fragmentation of PMP- oligosaccharide derivatives were significantly lower with DHAP/DAHC which enabled

meaningful data to be obtained in reflector mode, even for samples with high excipient levels. The relative magnitude of the ion signals for PMP-derivatized **maltooligosaccharides** and ribonuclease B oligosaccharides correlated well with the oligomer distribution apparent by HPLC. PMP- maltohexose was used as an internal standard to quantitate PMP- oligosaccharides from ribonuclease B and asialofetuin in crude derivatization **mixtures**. A linear relationship was observed between the ratio of the intensities of pseudomolecular ions and the amount of glycoprotein derivatized. The limit of detection for the major oligosaccharide of each protein was reached with ca. 3 µg of glycoprotein but may be further enhanced by optimization of sample handling. PMP derivatives of sialylated fetuin oligosaccharides were readily detected as protonated pseudomolecular ions by linear mode analyses. By comparison, reflector mode analyses revealed substantially reduced magnitudes of protonated pseudomolecular ions and considerable post-source fragmentation of sialic acid residues. The PMP derivatives of fetuin oligosaccharides were also amenable to exoglycosidase treatment as shown by the mass shifts found upon treatment with sialidase.

L19 ANSWER 4 OF 5 MEDLINE on STN  
 ACCESSION NUMBER: 96039609 MEDLINE  
 DOCUMENT NUMBER: PubMed ID: 8556147  
 TITLE: Separation and detection of 4-hexadecylaniline **maltooligosaccharide derivatives** with packed capillary liquid chromatography-frit fast atom bombardment-mass spectrometry.  
 AUTHOR: Johansson L; Karlsson H; Karlsson K A  
 CORPORATE SOURCE: Department of Medical Biochemistry, University of Goteborg, Sweden.  
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AB A LC-MS method is under development for the separation and detection of **mixtures** of native glycolipids and of **oligosaccharide derivatives**. The LC system is based on slurry-packed capillary columns. Frit fast atom bombardment (frit-FAB) is used as the LC-MS interface and ionisation technique and the column is connected to the frit via a 50 microns I.D. fused-silica capillary liner. Post column addition of matrix is achieved using a 50 microns I.D. fused-silica capillary liner with 2.5% (v/v) matrix solution. The two liners are joined through a septum and end side by side against the frit. The detection limit was found to be less than 1 pmole in the negative ion mode. A **mixture** of tetra to deca **maltooligosaccharides** reductively aminated with 4-hexadecylaniline (M4-10-HDA) was separated on a straight phase silica column using gradient elution.

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 INVENTOR: UCHIDA RIICHIRO; NASU AYAKO; IWAI YUKIHIKO; SOMEYA TAKAO; TOBE KOUICHIROU  
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AB PROBLEM TO BE SOLVED: To obtain the subject compound exhibiting excellent  $\alpha$ -amylase inhibitory activity without any side effect such as diarrhea, and useful as a preventive/therapeutic agent by binding a specific polyhydroxy nitrogen-containing compound to glucose with the reduced terminal.

SOLUTION: This compound (hydrate or salt) is shown by formula I (A is a group of formula II (X is N3 or NH2; Y is CH2OH or COOH), formula III or formula IV; (n) is 1-6), e.g. O- $\alpha$ -D-glucopyranosyl-(1 $\rightarrow$ 4)-6-amino-6-deoxy-D- sorbitol. The illustrated compound is obtained by reducing 6l-azido-6l- deoxymaltose with sodium borohydride in an N,N-dimethylformamide solvent.

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